

REFERENCES

- [1] A. Papoulis, *Probability, Random Variables, and Stochastic Processes*, first ed., NY: McGraw-Hill, 1965.
- [2] W. Turin, *Performance Analysis of Digital Transmission Systems*, New York: Computer Science Press, 1990.

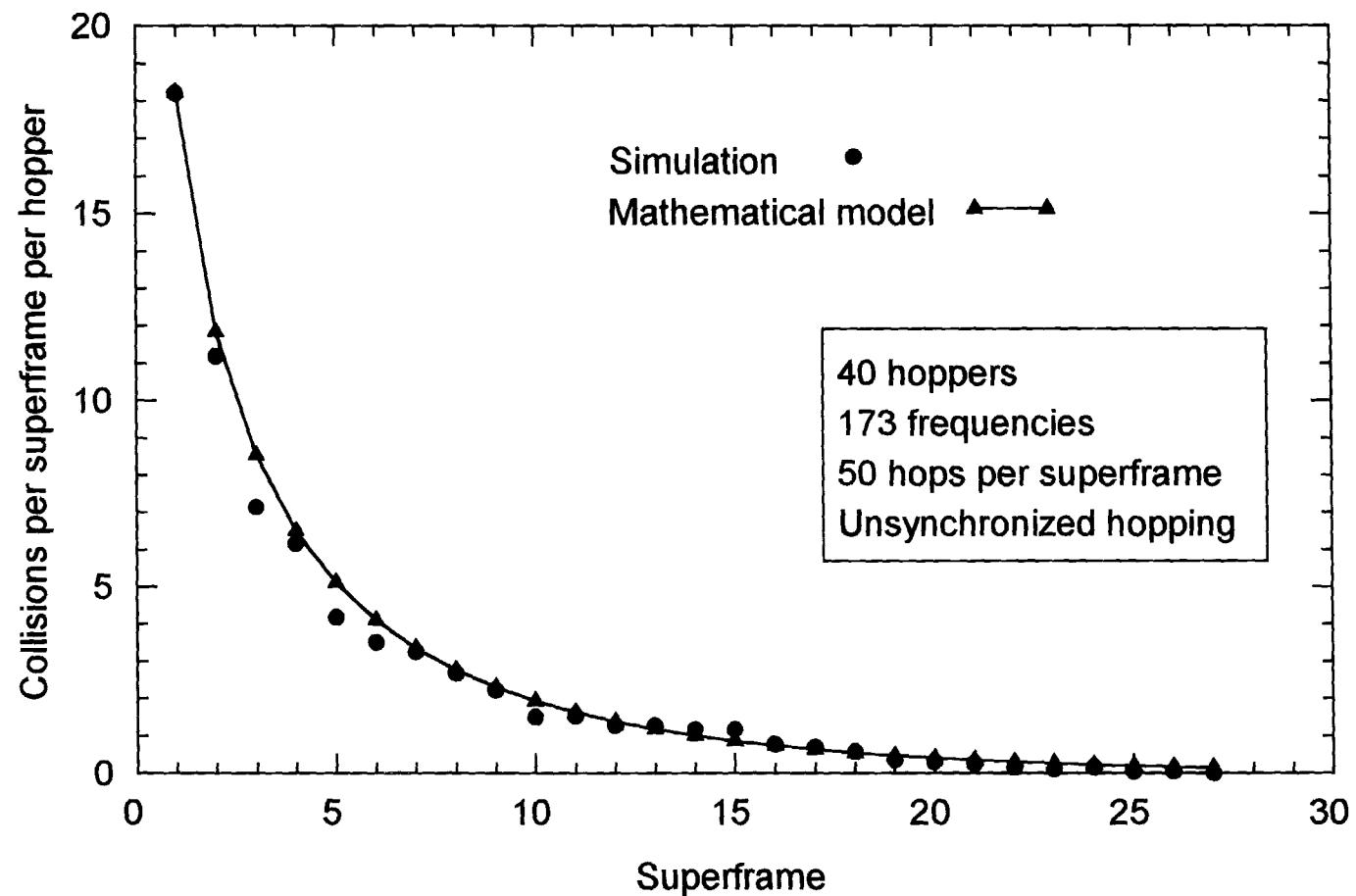


Figure 1: Comparison of average collision trajectory computed from the mathematical model (eq. 16) to that observed on a sample run of the simulation, for 40 hoppers ($K=39$).

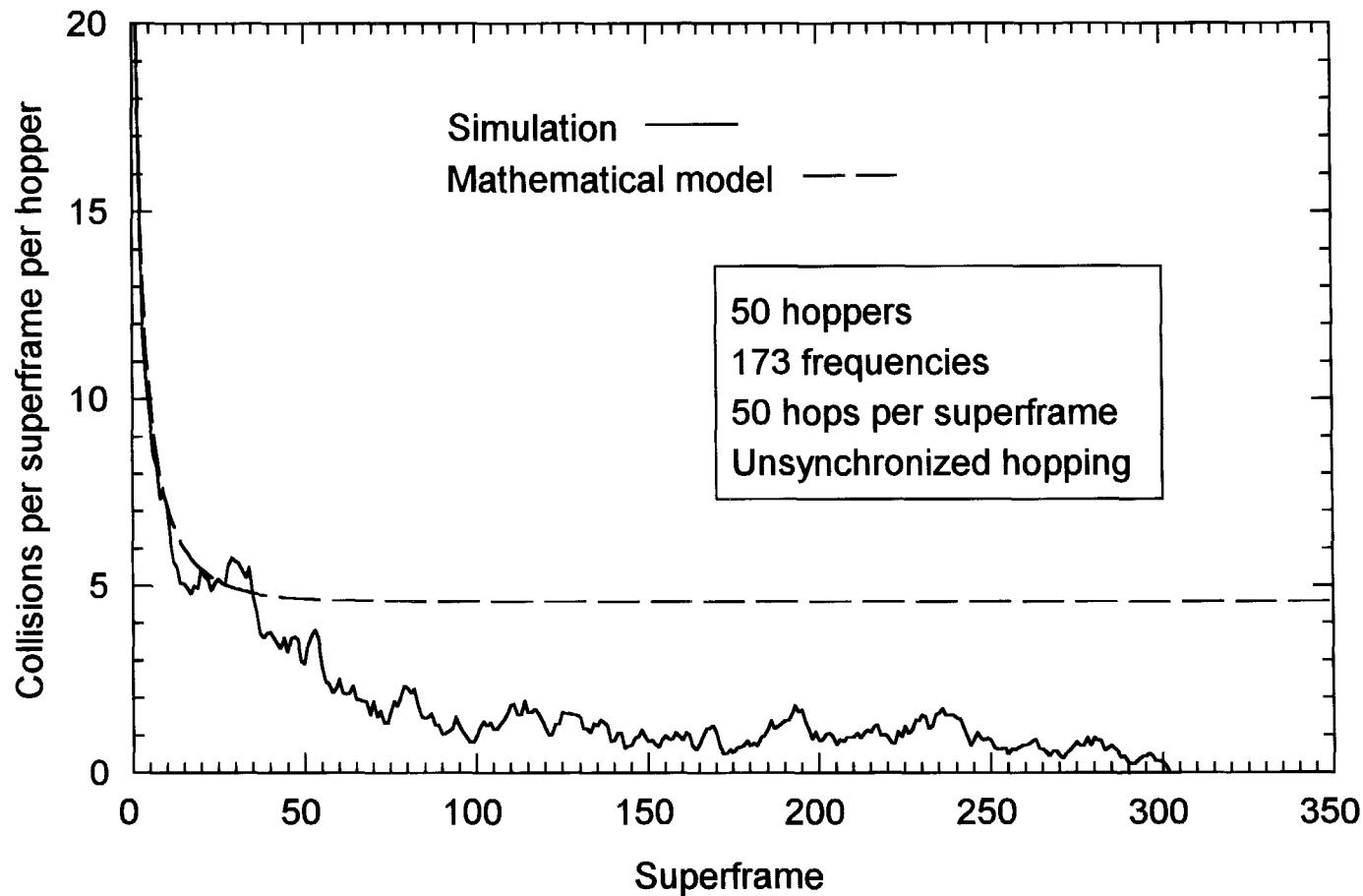


Figure 2: Comparison of average collision trajectory computed from the mathematical model (eq. 16) to that observed on a sample run of the simulation, for 50 hoppers ($K=49$).

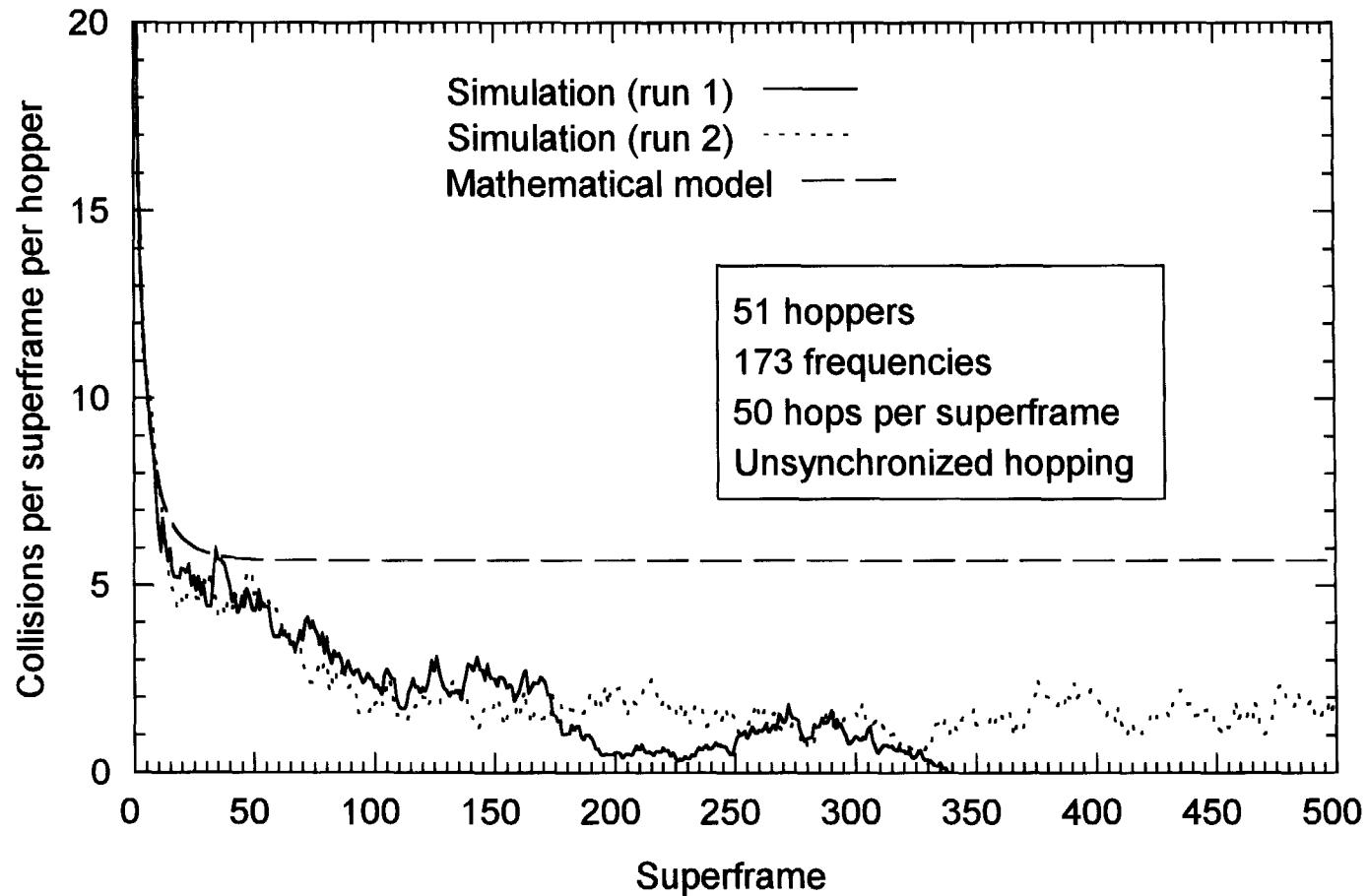


Figure 3: Comparison of average collision trajectory computed from the mathematical model (eq. 16) to that observed on two different sample runs of the simulation, for 51 hoppers ($K=50$).

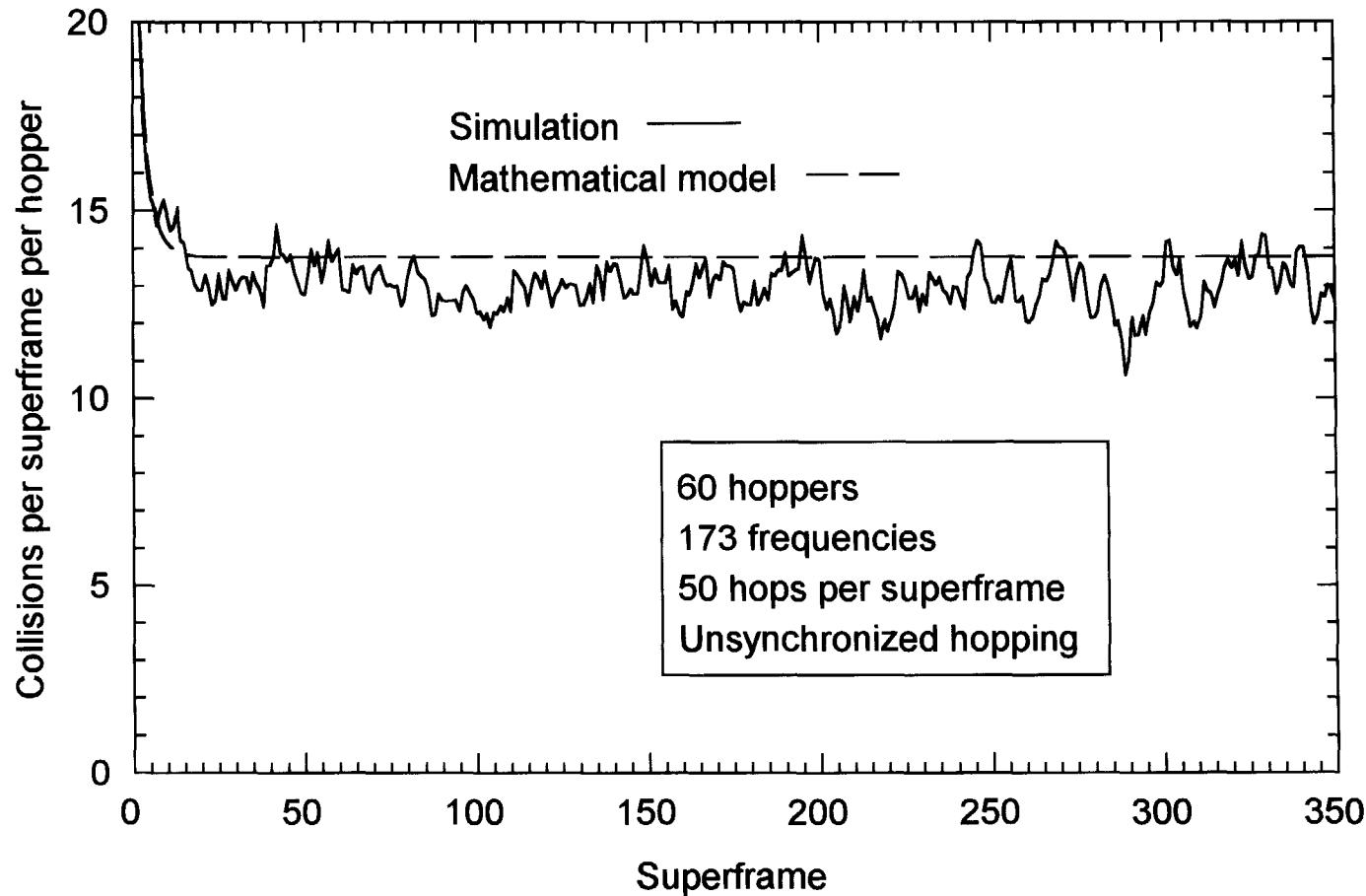


Figure 4: Comparison of average collision trajectory computed from the mathematical model (eq. 16) to that observed on a sample run of the simulation, for 60 hoppers ($K=59$).

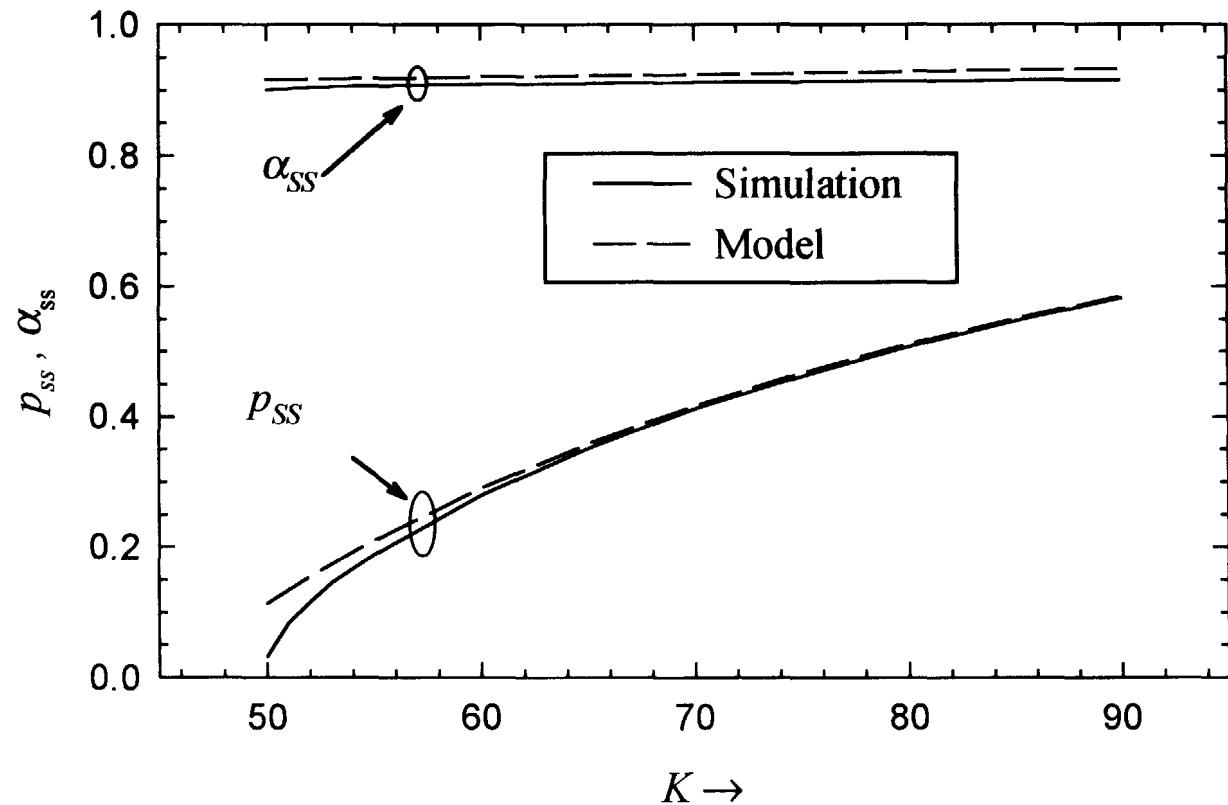


Figure 5: Steady-state values of the collision probability (p_{ss}) for unsynchronized hopping and α , from the analysis and from the simulation.

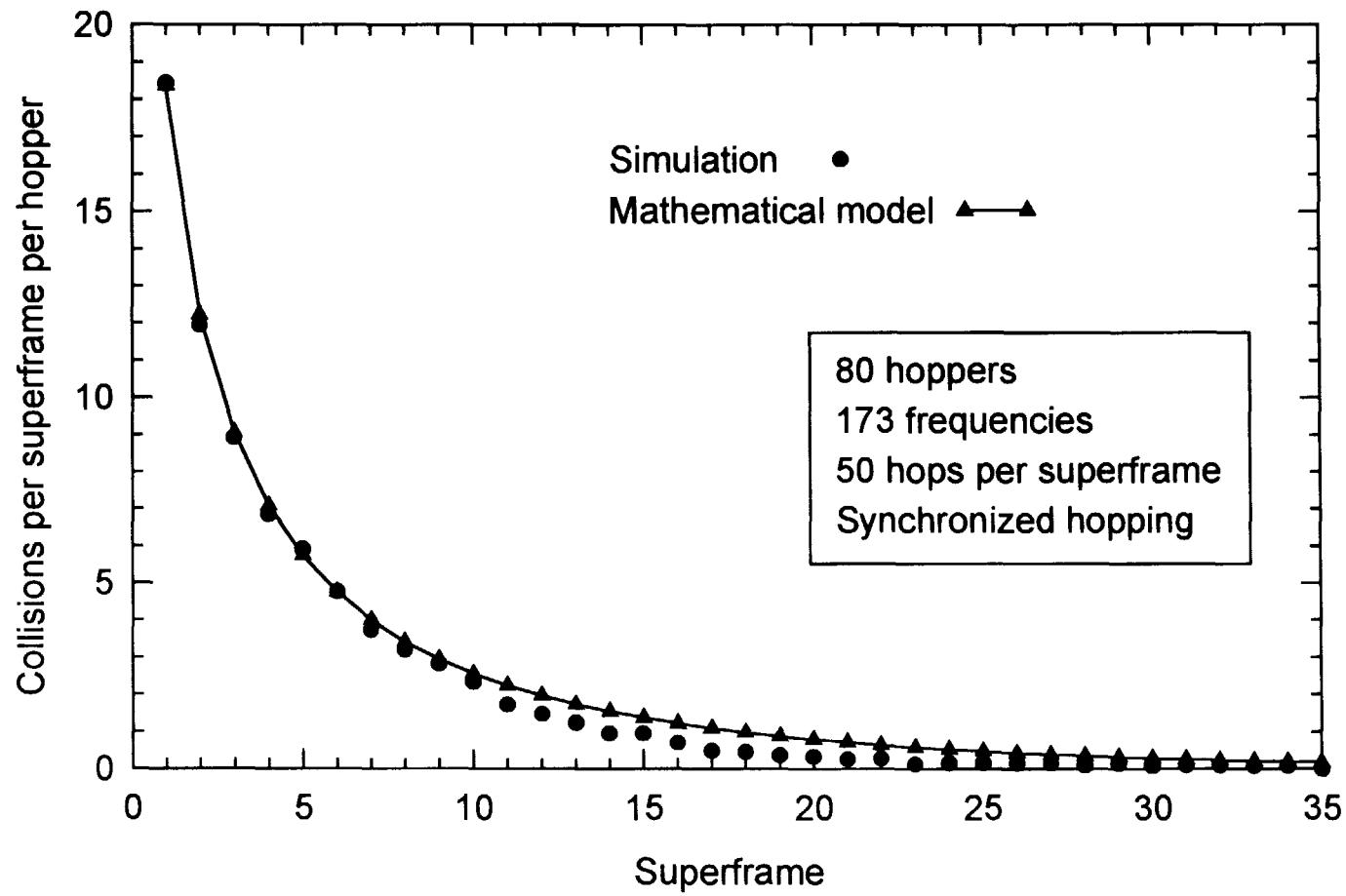


Figure 6: Comparison of average collision trajectory computed from the mathematical model to that observed on a sample run of the simulation, for 80 hoppers ($K=79$) assuming that all hoppers are synchronized (hop simultaneously).

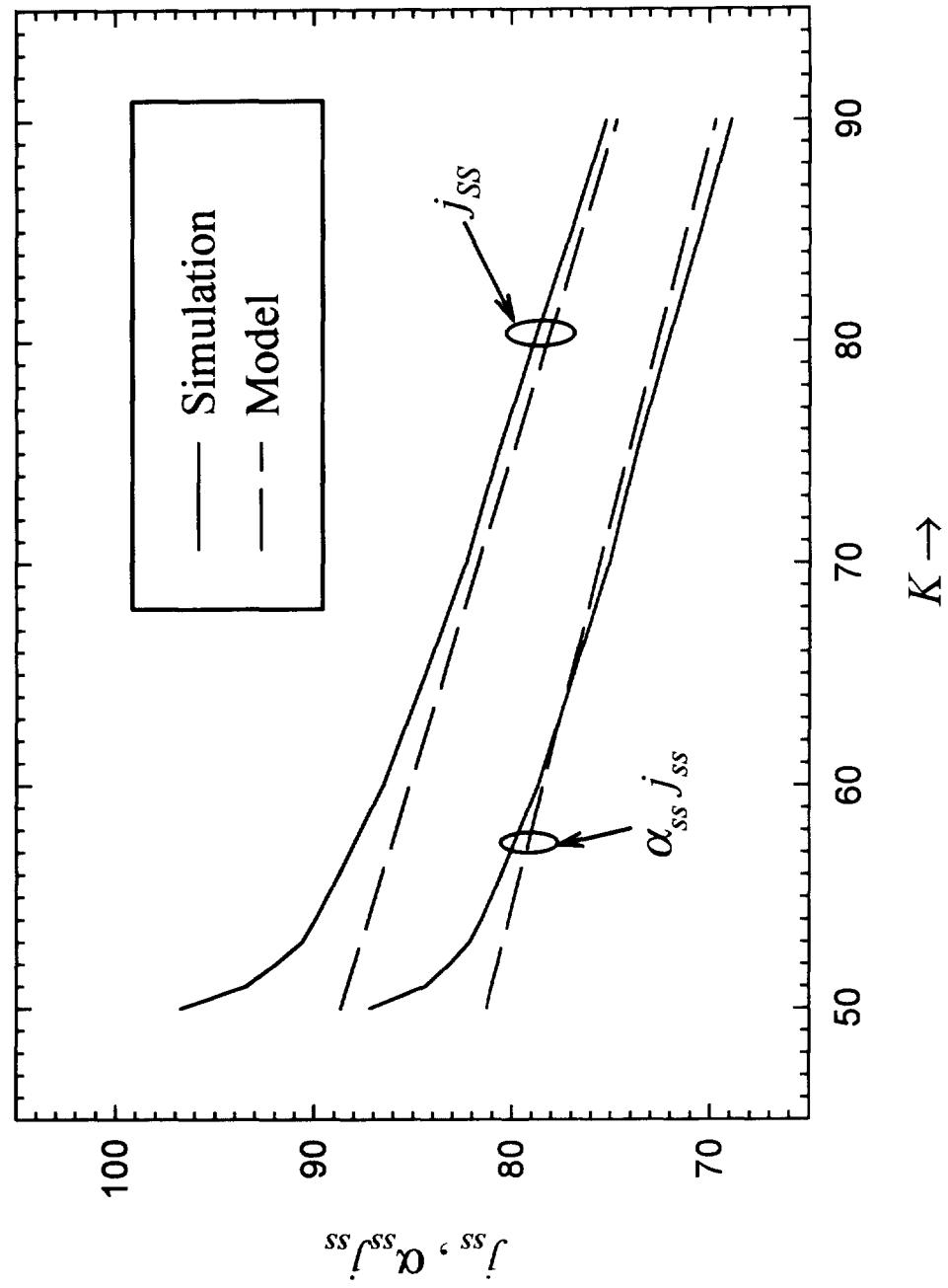


Figure 7: Steady-state average values of j_i and $\alpha_i j_i$

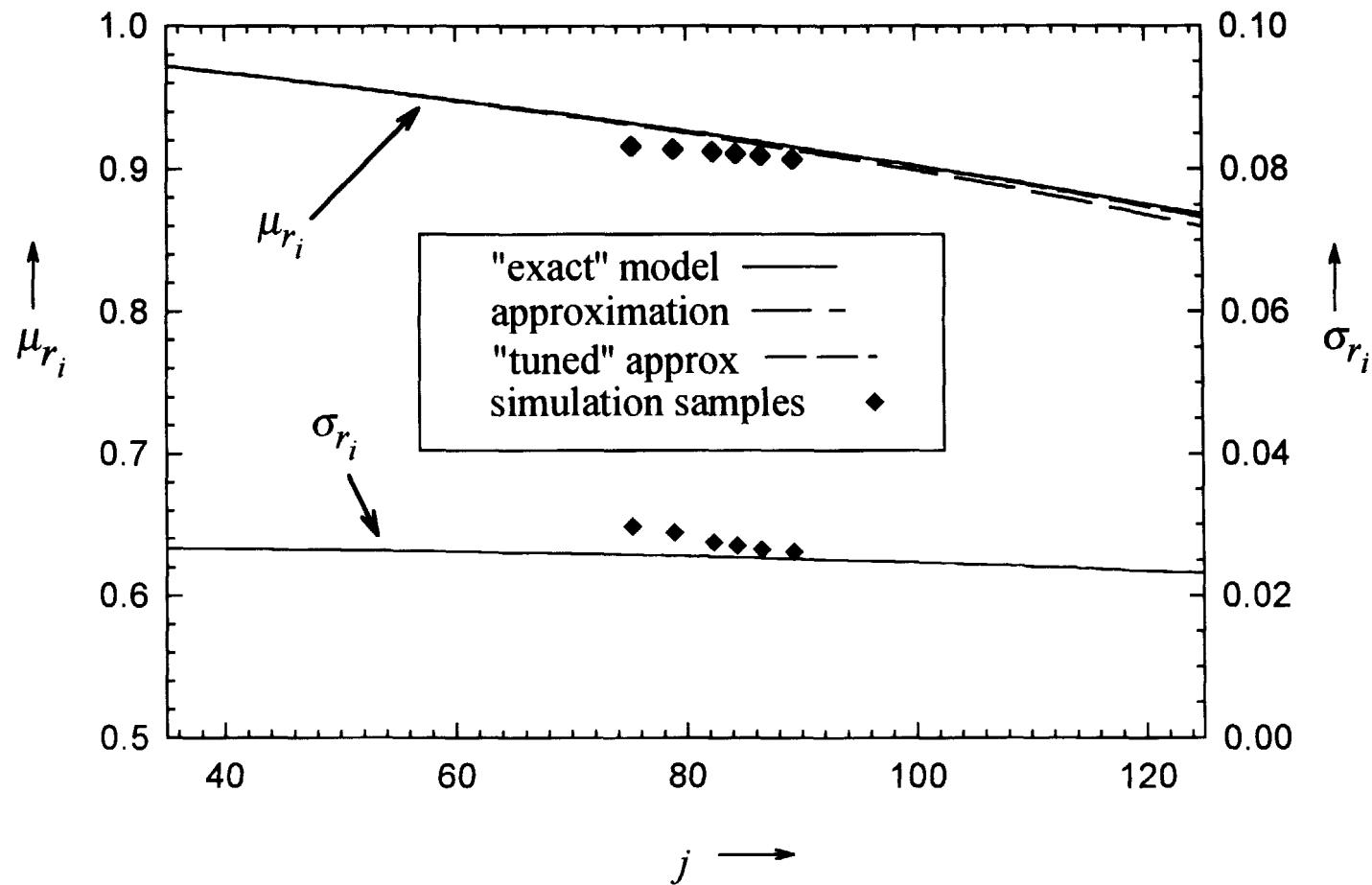


Figure 8: Mean and standard deviation of r_i given that $j_i = j$. The "exact" model refers to the computations of Appendix B, and the "tuned" approximation (eq. 15, which is nearly indistinguishable from the "exact" model) was used to calculate the numerical results for the model.

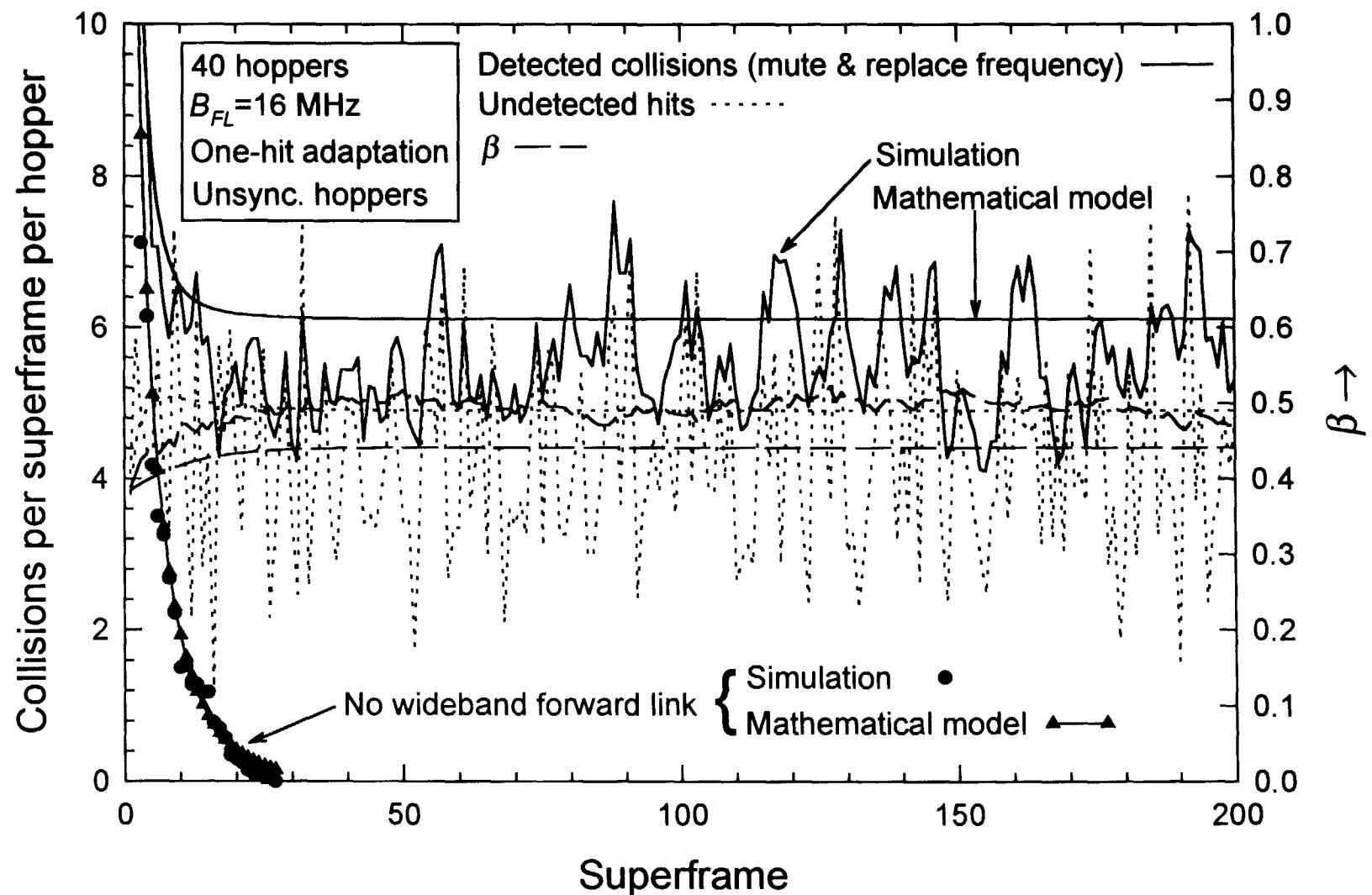


Figure 9: Simulation and analysis results for 40 hoppers with wideband forward link interference; 3% forward link slot utilization factor (1% transmit duty cycle).

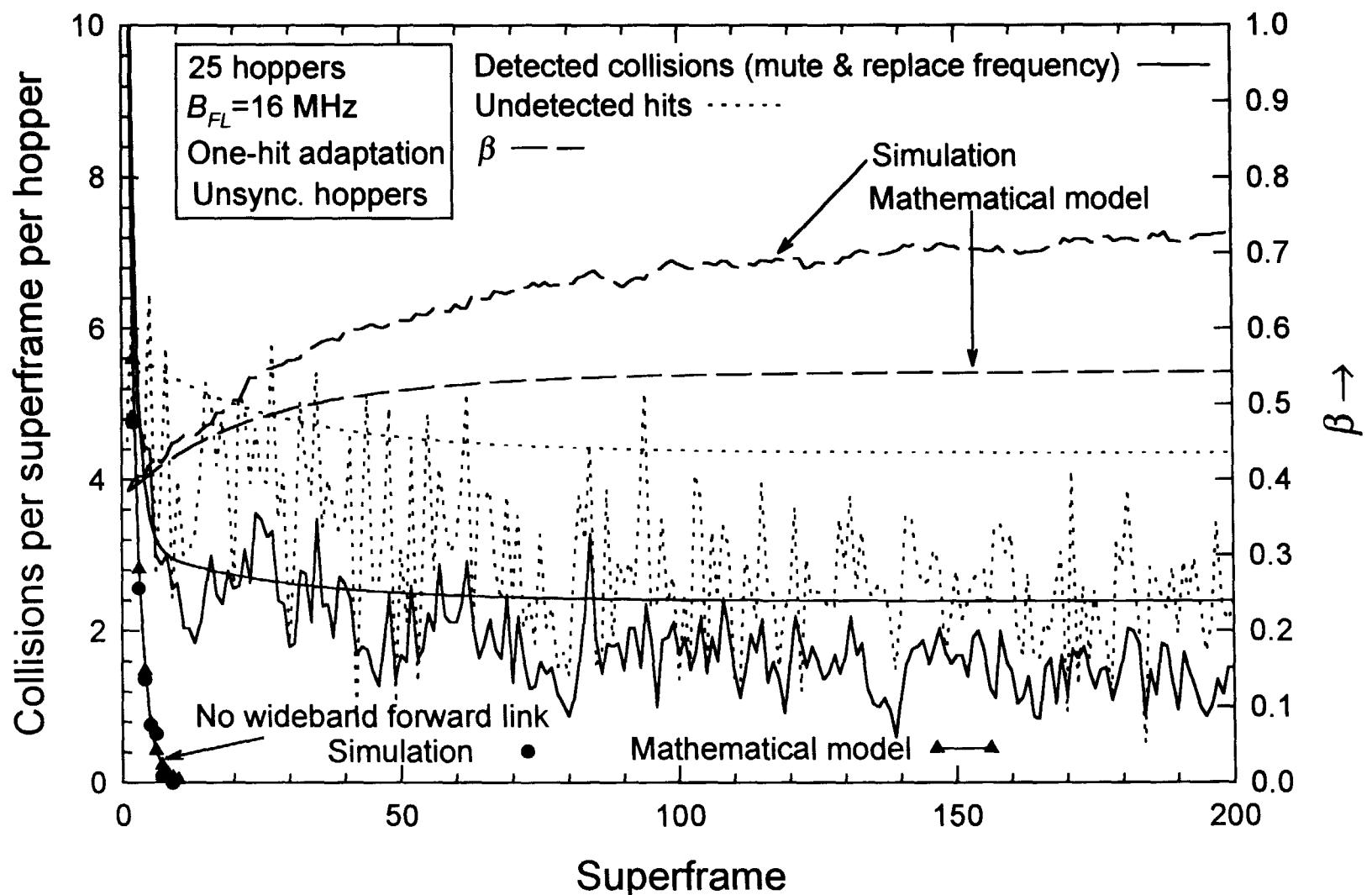


Figure 10: Simulation and analysis results for 25 hoppers with wideband forward link interference; 3% forward link slot utilization factor (1% transmit duty cycle).

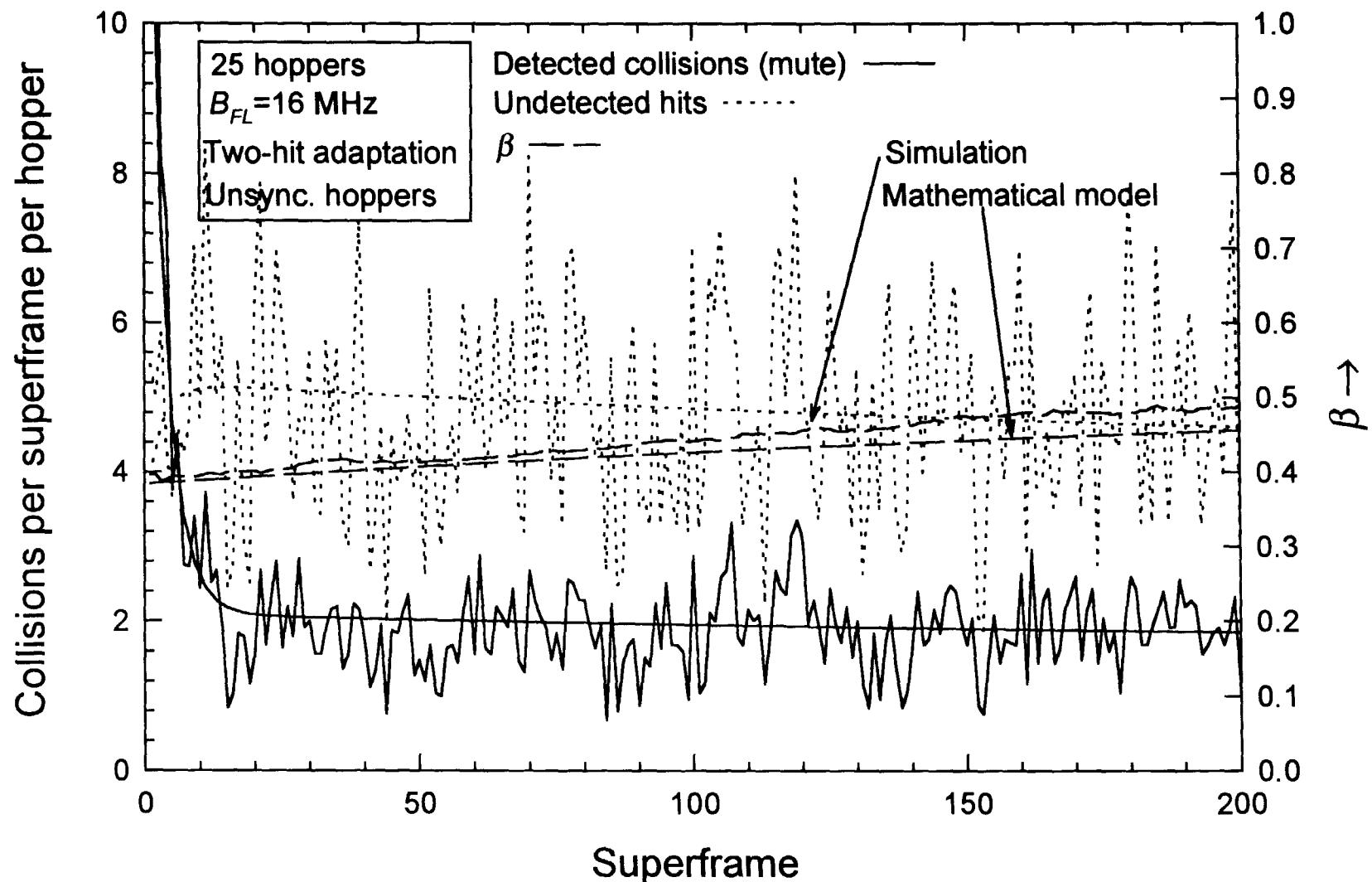


Figure 11: Simulation and analysis results for 25 hoppers with wideband forward link interference and two-collision frequency replacement triggering.

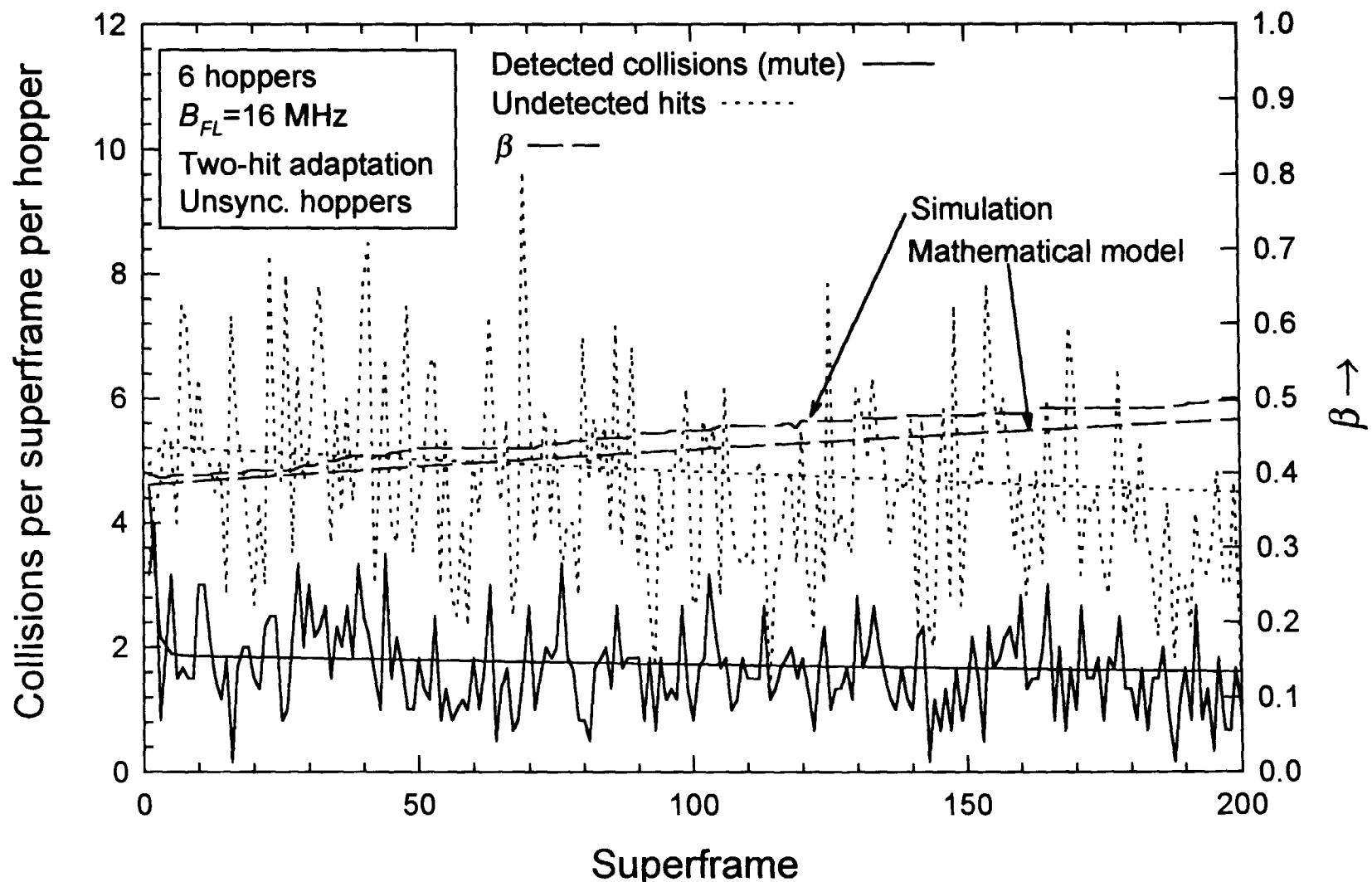


Figure 12: Simulation and analysis results for 6 hoppers with wideband forward link interference assuming unsynchronized hopping and two-hit frequency replacement.

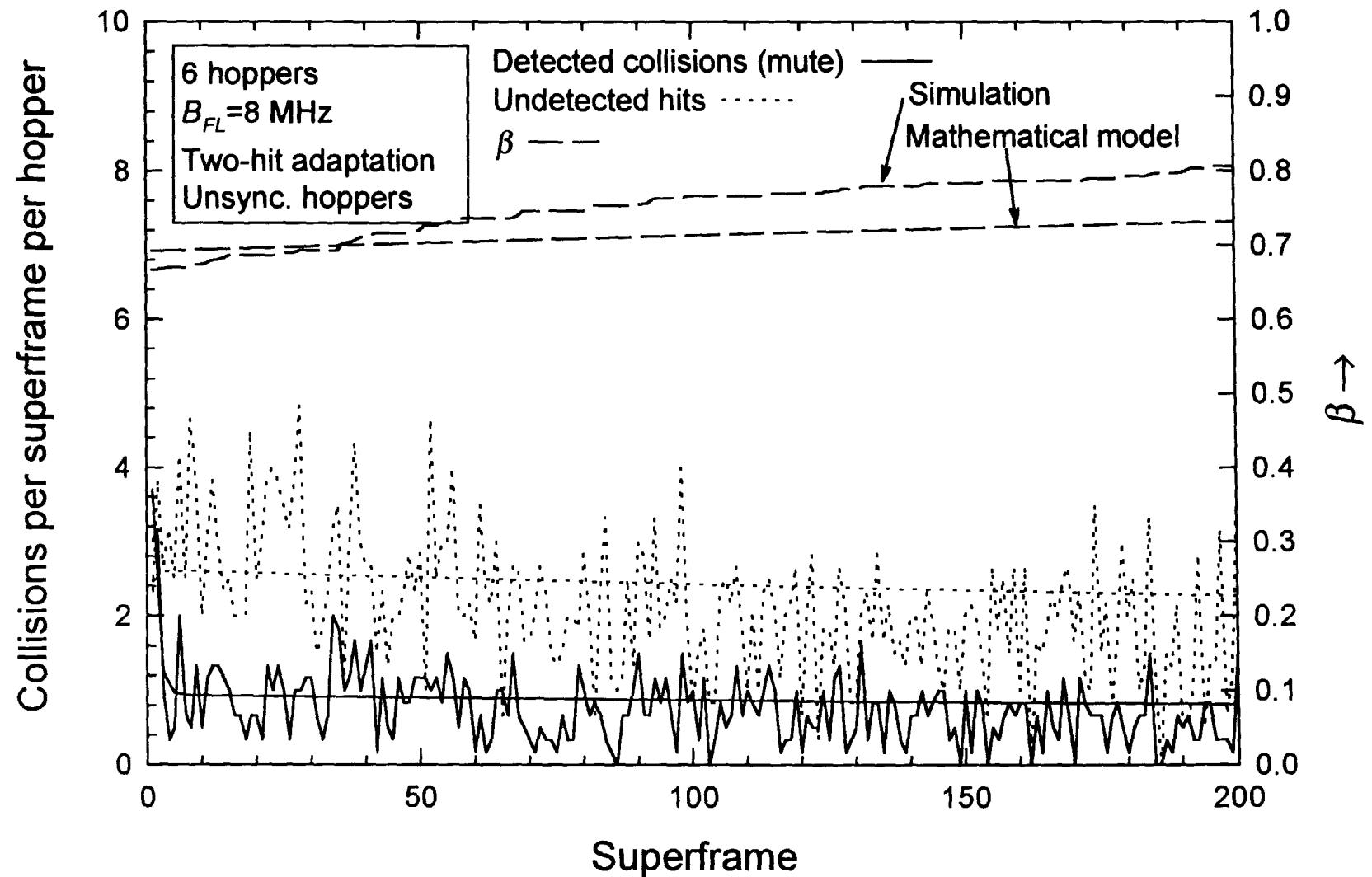


Figure 13: Simulation and analysis results for 6 hoppers with wideband forward link interference assuming unsynchronized hopping and two-hit frequency replacement.

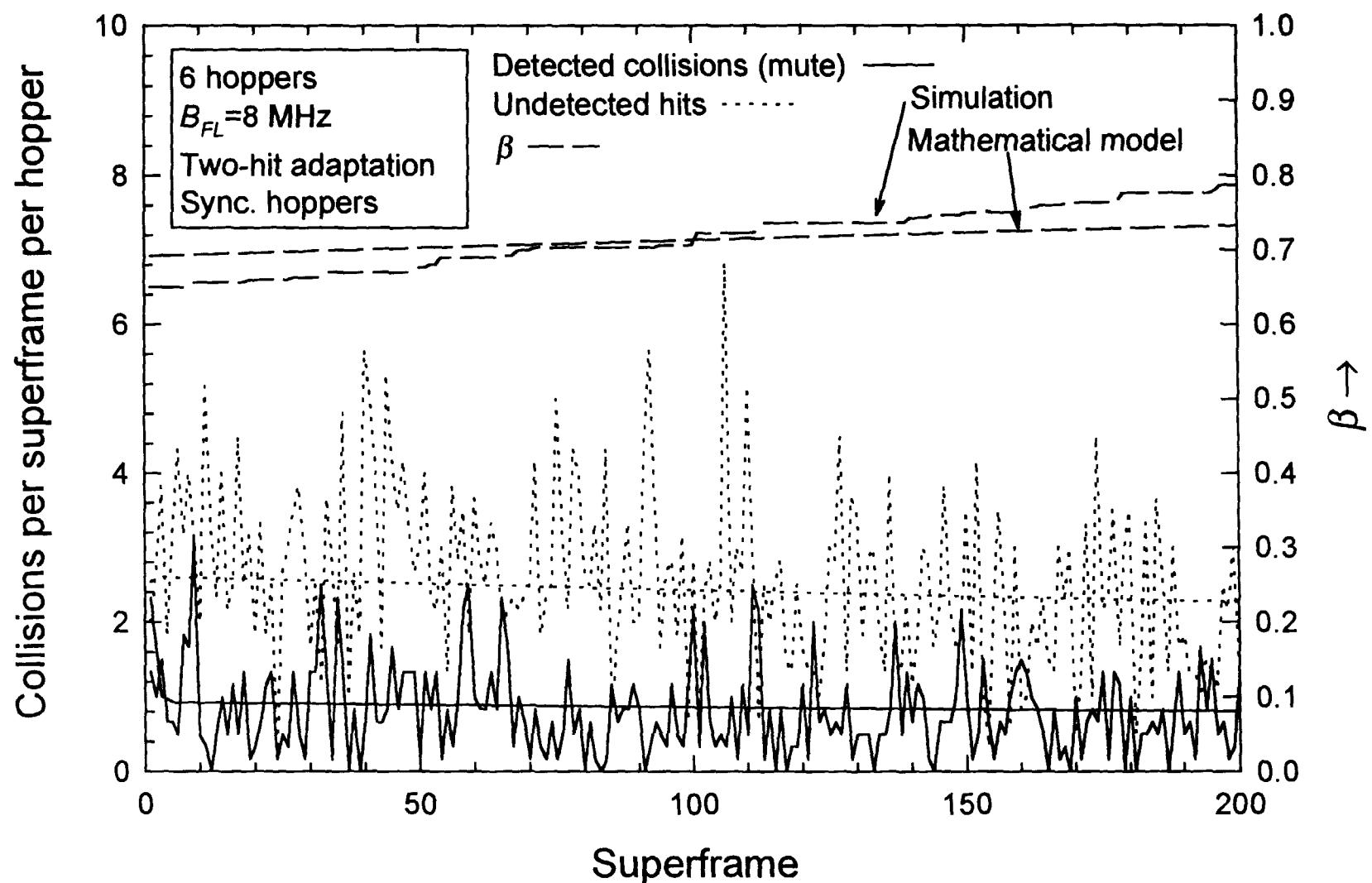


Figure 14: Simulation and analysis results for 6 hoppers with wideband forward link interference assuming synchronized hopping and two-hit frequency replacement.